DICTIONARY OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

Second Edition

J. STENESH

Professor of Chemistry
Western Michigan University

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septicemia The presence of pathogenic microorganisms in the blood.

septum (*pl* septa; septums) A wall or a membrane that divides a cavity.

Sequenase Trademark for an enzyme preparation used in DNA sequencing. The enzyme is derived from bacteriophage T7 DNA polymerase and has been modified to improve its properties for sequencing.

sequenator An instrument for the automatic determination of amino acid sequences in a polypeptide chain; operation of the instrument is based on the repetitive application of the Edman degradation. *Aka* sequencer.

sequence 1. The linear order in which monomers occur in a polymer; the order of amino acids in a polypeptide chain, and the order of nucleotides in a polynucleotide strand are examples. 2. METABOLIC PATHWAY.

sequence complexity *See* complexity.

sequence gap A segment, consisting of one or more amino acids, that appears to be missing from a polypeptide chain when this chain is compared with others of the same protein but isolated from different sources, and when the chains are matched up so as to provide a maximum of sequence homology.

sequence homology The identity in sequence of either the amino acids in segments of two or more proteins, or the nucleotides in segments of two or more nucleic acids.

sequence hypothesis The hypothesis that the sequence of nucleotides in a nucleic acid specifies the sequence of amino acids in a protein.

sequence isomer One of two or more polymeric isomers that differ from each other in the sequence of the monomers in the chain.

sequence polymer A synthetic polypeptide consisting of identical repeating units, each of which is composed of more than one type of amino acid; the polymer $(gly\text{-}ala\text{-}ser\text{-}val)_n$ is an example. *See also* polyamino acid.

sequencer SEQUENATOR.

sequence rules RS SYSTEM.

sequence specificity The selectivity of a nuclease that accounts for its reaction being limited to specific base sequence in the nucleic acid.

sequencing The determination of the order of amino acids in a peptide, polypeptide chain, or protein, or the determination of the order of bases (nucleotides) in a nucleotide, polynucleotide strand, or nucleic acid.

sequencing gel A long, thin polyacrylamide gel slab used for nucleic acid sequencing.

sequential feedback inhibition The inhibition that is produced when one or more end products inhibit an enzyme in a metabolic pathway and the metabolite that accumulates as a result of this inhibition then inhibits the first enzyme in the sequence and thereby shuts off the entire pathway.

sequential induction Enzyme induction in which a single inducer brings about the synthesis of a number of inducible enzymes; the first enzyme induced acts on the inducer, thereby transforming it into an inducer for the second enzyme, which in turn acts on the second inducer, and so on. *See also* coordinate induction.

sequential mechanism The mechanism of an enzymatic reaction in which two or more substrates participate in such a fashion that all the substrates must become bound to the enzyme before any products can be released. The mechanism is ordered if the substrates add to, and the products leave, the enzyme in an obligatory sequence; the mechanism is random if the substrates add to, and the products leave, the enzyme in a nonobligatory sequence.

sequential model A model for allosteric enzymes, proposed by Koshland, Nemethy, and Filmer, according to which the enzyme undergoes a series of conformational changes as the various ligands become bound to the enzyme. Different types of site interactions may occur of which symmetry preservation, as in the concerted model, may be a special case. In general, however, the symmetry of the enzyme molecule is not conserved, since a subunit changes its conformation as a ligand becomes bound to it. The capacity of the enzyme to bind substrate, positive effectors, and negative effectors is altered by the conformational changes which the subunits undergo. *Abbr* KNF model.

sequential reactions CONSECUTIVE REACTIONS.

sequester To form a chelate.

sequestering agent CHELATING AGENT.

sequestration CHELATION.

sequestrene ETHYLENEDINITROLOTETRAACETIC ACID.

sequon An obligatory sequence of amino acids that is required for a specific reaction. The term has been used to describe the tripeptide asn-x-thr or asn-x-ser that must occur in a protein for the asparagine (asn) to be able to act as a site of attachment for a carbohydrate moiety, thereby giving rise to a glycoprotein. *Var sp* sequeon.

Ser 1. Serine. 2. Seryl.

SER Smooth endoplasmic reticulum.

serendipity The gift for discovering valuable or useful things not specifically sought but recognized in the process of dealing with other things.

serial dilution The systematic and progressive dilution that is frequently used in immuno-